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Description

Folding box with base offset to the inside of the box

The invention relates to a folding box for goods such as glasses, bottles, jars or similar products, in particular for cosmetics articles, having a rectangular pack casing, having a lid part which is connected to the border side of said pack casing and is provided with an insertion flap which engages in the pack casing, and having a base offset to the inside of the box.

EP 0 699 588 A1 discloses a folding pack for goods such as glasses, bottles, jars or similar products which has a rectangular pack casing, a lid part which is connected to the border side of said pack casing and is provided with an insertion flap which engages in the pack casing, and a base part likewise provided with an insertion flap.
Connected to the two walls of the pack casing which are adjacent to the base part and/or the lid part is in each case one deformable flap which has three folding lines which run parallel to the connection border on the pack casing and subdivide the deformable flap into four individual sections, the outer section being adhesively bonded to the inside of the pack casing.
This forms two carriers for accommodating the product which is to be protected in the pack, and of which the position is further strengthened by the provision of cutouts in the carriers which are adapted to the shape of the product.
In the embodiment selected here, the base of the folding pack always terminates flush with the surface on which the folding pack stands. Arranging the base to be offset in the direction of the interior of the folding pack is not proposed, nor moreover, on account of the arrangement of the flaps, is it possible.
The disadvantage with the folding pack is, on the one hand, that the product located within the pack is not sufficiently protected and, on the other hand, that the stability of the base is not increased, precisely as is customary in the packaging sector.

EP 0 642 977 A1 discloses a similar box, which has at least one retaining and protective element for a glass. The box is formed by four successive main walls. Provided both in the lid region and in the base region are two conventional closure

walls which can close the box in the known manner.
Articulated, furthermore, in the lid region are two dust flaps which, before the top closure wall is inserted into the pack body, are swung in and thus make it difficult for dirt and dust to penetrate.

Essential to the invention are two flaps which are provided in the base region and are divided up into a multiplicity of continuous individual sections. Folding said flaps produces within the box, a double-layered two-part carrier which is made up of the individual sections and is helpful for fixing the product and for displaying the same. Provided in the two carrier halves are cutaway portions, of which the shape and size are adapted to the product which is to be accommodated.

The object of the invention is to provide a reclosable cuboidal folding box which provides a reinforced base, which can be stacked one upon the other and which provides sufficient protection to the product located within the folding box, which has a high level of stability with the smallest possible amount of material being used, which can be produced cost-effectively using the smallest possible amount of material, which can be easily and quickly erected, filled and closed with the aid of machines, and of which the folding blank is in a single piece.

This object on which the invention is based is achieved by the teaching of the main claim. Advantageous configurations are explained here in the subclaims. The invention also covers a punched blank of the folding box according to the invention.

Accordingly, the invention describes a folding box for goods such as glasses, bottles, jars or similar products, in particular for cosmetics articles, having a rectangular pack casing, and having a lid part which is connected to the border side of said pack casing and is provided with an insertion flap which engages in the pack casing.
In each case one intermediate flap is articulated, in the base region of the folding box according to the invention, on each of the four side walls which together form the pack casing, the intermediate flaps all being of the same height. In each case one base flap is articulated on each of the four intermediate flaps, in each case two of the base flaps being adhesively bonded to one another such that the base automatically closes as the folding box is erected.

In a first preferred embodiment of the folding box, connected in an articulated manner, in the lid region, to the two walls of the pack casing which are adjacent to the lid part is in each case one flap, said flap having three folding lines which run

parallel to the connection border on the pack casing and subdivide the flap, as seen from the connection border, into a first spacer crosspiece, into a supporting strip, into a second spacer crosspiece and into an adhesive flap. The adhesive flap here is adhesively bonded to the inside of the pack casing such that the supporting strip and the second spacer crosspiece are aligned essentially at right angles to one another.

The two spacer crosspieces are preferably of the same, or of at least more or less the same, width.

The supporting strip and the second spacer crosspiece also preferably have a cutout which is provided for accommodating the product and is adapted to the shape of the latter.

For example, the cutout may be rectangular in the region of the supporting strip and be circle-arc-shaped or trapezoidal in the following, second spacer crosspiece.

Furthermore, the circle-arc-shaped or trapezoidal region of the cutout may extend as far as the folding line of the adhesive flap.

In a further preferred embodiment of the folding box, and in particular of the flaps, in the case of the flaps, the adhesive flap is followed in each case by a third spacer crosspiece, via a folding line, and by a second adhesive flap, via a folding line. This achieves the situation where the walls of the flaps are at least partially of double-walled design, which further increases the stability of the flaps. This is advantageous, in particular, in the case of heavy products because bowing of the flaps is thus reliably prevented.

In the region of the flap, there may be provided a surface which has an increased coefficient of static and/or sliding friction and against which the product inserted into the folding box butts at least partially. In particular, the surface is formed, in certain regions, by a folding unit which is connected integrally to the adhesive flap and the supporting strip and has two folding lines which are spaced apart by a distance corresponding essentially to the width of the spacer crosspiece.

In order to improve the stacking capacity of the folding boxes, it has proven advantageous if at least two side walls of the folding box which form the pack casing taper slightly in the direction of the lid region starting from the base region, in which case the tapering side walls should be arranged opposite one another.

The reduction in the side-wall width applies particularly preferably to all four side

walls.

In this way, the pack casing attains the form of a pyramid which has a preferably square base surface and of which the vertex has been removed, a so-called truncated pyramid. The inclination of the side walls preferably does not exceed 10°, but can also assume much higher values.

In a further preferred embodiment of the folding box, provided in a, in particular the front, side wall is a cutout which extends, in particular, into the adjacent side walls and is covered, in particular, by a transparent film.

It is thus easy to see the product located within the pack, with the result that an aesthetically pleasing product can attract more potential buyers.

Furthermore, the film prevents the penetration of dust and, at the same time, increases the stability, since the action of punching out the window in the folding box reduces the rigidity of the folding box. The adhesive bonding of the window film compensates for the reduction in the rigidity of the folding box.

Possible materials for the folding box are all suitable flexible materials, but in particular cardboard and paperboard.

The invention also covers at least one punched blank for producing a reclosable, cuboidal folding box with a front side wall, a rear side wall, a right-hand side wall, which connects the front side wall and the rear side wall, and a left-hand side wall, a base closure, which is formed by four base-closure tabs, and a top closure, which is formed by three closure tabs, it being the case that

- the folding box comprises a folding blank made of paperboard, cardboard or some other suitable material,
- the front side wall, the rear side wall, the right-hand side wall, which connects the front side wall and the rear side wall, and the left-hand side wall as well as the flap, each linked to one another via folding lines, are arranged rectilinearly one behind the other in a row,
- articulated on the rear side wall, via the folding line, is a rectangular lid part which terminates, via the folding line, in an insertion flap which engages in the pack casing, and, on the opposite side, an intermediate flap via a folding line, a base flap being articulated on the intermediate flap via the folding line,
- the right-hand side wall has articulated on it, on the one hand, a flap via a folding line and, on the other hand, on the opposite side, an intermediate flap via a folding line, the flap being divided up into five individual sections, to be precise, starting from the folding line, into a first spacer crosspiece, into a crosspiece, into a supporting strip, into a second spacer crosspiece and into

an adhesive flap, between which a total of four folding lines which are arranged parallel to the pack border are provided, a base flap being articulated on the intermediate flap via the folding line,

- an intermediate flap is articulated, via the folding line, on the front side wall, in which there is provided, if appropriate, a cutout which extends into the adjacent side walls, a base flap being articulated on the intermediate flap via the folding line,
- the left-hand side wall has articulated on it, on the one hand, a flap via a folding line and, on the other hand, on the opposite side, an intermediate flap via a folding line, the flap being divided up into five individual sections, to be precise, starting from the folding line, into a first spacer crosspiece, into a crosspiece, into a supporting strip, into a second spacer crosspiece and into an adhesive flap, between which a total of four folding lines which are arranged parallel to the pack border are provided, a base flap being articulated on the intermediate flap via the folding line.

The folding box according to the invention has an inwardly drawn base, in a preferred embodiment flaps in the lid region which, on the one hand, avoid the penetration of dust into the folding box and, on the other hand, serve as fixing surfaces (supports) for the product which is to be stored within the folding box.

The fixing surfaces retain the product (in particular a jar with a screw lid) in a centered manner in the center of the folding box. These two supports incorporated in the flaps ensure that the product is fixed well.

The flaps in the lid region may have additional step-like recesses which are formed in accordance with the product.
These additional grips on the two lateral top regions of the product fix the product in the viewing window of the folding box, with the printing in a precise position, without subsequent shifting and turning being possible.

These additional fixing, adhesively bonded folded sections in the region of the supports may be adapted to the dimensions of the product. The inwardly drawn base provides a platform-like elevation in the interior of the folding box. By virtue of these two prominent packaging components, the product is retained to good effect even when subjected to pronounced pressure or vibration. In conjunction with the cutaway window portion in the front bottom region of the folding box, the product is displayed in a clearly visible manner.

Flaps of straightforward configuration can also support the product. If alignment, with the printing in a precise position, in relation to the window of the folding box is to take place, additional adhesive bonding may be carried out, either on the flaps or on the base surface.

This type of adhesive bonding achieves a high crumpling resistance. The product (in this case a jar) is thus reliably retained on its tray-like insert. Deformation of the drawn-in base can be ruled out.

Particularly advantageous configurations of the folding box together with the punched blank will be explained in more detail with reference to the figures described hereinbelow, without there being any intention of restricting the invention unnecessarily. In the figures:

Figure 1 shows the flattened-out, non-adhesively-bonded punched blank of an advantageously configured folding box,

Figure 2 shows the flattened-out, non-adhesively-bonded punched blank of a further advantageously configured folding box,

Figure 3 shows the flattened-out, non-adhesively-bonded punched blank of a further advantageously configured folding box,

Figure 4 shows the operation of assembling a flap within the folding box according to figure 3,

Figures 5 & 6 show the first steps in the operation of folding the folding box according to figure 2,

Figure 7 shows the base closure of an advantageously configured folding box, and

Figure 8 shows two completed folding boxes according to the invention being stacked one upon the other.

Figure 1 illustrates the folding blank 10 of the folding box 1, said blank comprising a single-piece cardboard blank. The folding blank 10 may consist of paperboard, cardboard or some other suitable material. The body of the erected folding box 1 is formed by the front side wall 13, the rear side wall 11, the right-hand side wall 12, which connects the front side wall 13 and the rear side wall 11, and the left-

hand side wall 14, a flap 15 being articulated laterally on the left-hand side wall 14, and being adhesively bonded to the rear side wall 11, for the non-releasable closure of the body.

All the side walls 11, 12, 13, 14 are rectangular and are preferably of the same dimensions, with the result that, once erected, the folding box 1 has a square base surface. The flap 15 tapers slightly trapezoidal in the direction of its free end and is wide enough for reliable adhesive bonding to the rear side wall 11 to be possible. The flap 15 extends in this case – this being the maximum space – over the entire length of the side wall 14.

The individual side walls 11, 12, 13, 14 and the flap 15 are connected to one another in a row via corresponding folding lines 101, 102, 103, 104.

In the prominent embodiment of the folding box 1 which is shown here, provided in the front side wall 13 is a cutout 131 which extends into the adjacent side walls 12, 14 and may be covered by a transparent film, which is preferably adhesively bonded correspondingly in the folding-box interior.

An intermediate flap 21, 22, 23, 24 is articulated, in each case via a folding line 105, 106, 107, 108, on each of the four side walls 11, 12, 13, 14 which together forms the pack casing of the folding box 1, the intermediate flaps 21, 22, 23, 24 all being of the same height.
Furthermore, the intermediate flaps 21, 22, 23, 24 are preferably all of identical shape; they are particularly preferably rectangular. The height of the intermediate flaps 21, 22, 23, 24 predetermines how far the base 30 of the folding box 1 is ultimately displaced into the interior of the folding box 1.
For assembling the folding box 1, the intermediate flaps 21, 22, 23, 24 are swung into the interior of the box 1.

A base flap 31, 32, 33, 34 is articulated, in each case via a folding line 112, 113, 114, 115, on each of the four intermediate flaps 21, 22, 23, 24, in each case two of the base flaps 31, 32, 33, 34 being adhesively bonded to one another such that the base 30 automatically closes as the folding box 1 is erected.
The base flaps 31, 32, 33, 34 preferably form a base closure 30, as is known according to ECMA Code A 6101 or A 6120 (see "THE ECMA CODE of FOLDING CARTON STYLES", published by ECMA (European Carton Makers Association), Reprint January 2000), as a folding-base closure with a fully covering base flap. Said base closure 30 is erected automatically, as a result of the specific shaping

of the base flaps 31, 32, 33, 34, as the folding box 1 is adhesively bonded.

If the folding box 1 is filled with contents, the base closure 30 cannot be opened from the outside.

For assembling the base closure 30, the two adhesive sections 321, 341, which are integrally formed on the flaps 32 and 34, are adhesively bonded to the flap 33 and 31, to be precise the section 341 is adhesively bonded to the flap 33 and the section 321 is adhesively bonded to the flap 31.

As the folding box 1 is erected, the base closure 30 closes such that the flap 33 becomes a base for the product which is to be displayed within the folding box. The flap 33 is thus preferably more or less the same size as the cross section of the folding box 1.

Articulated on the rear wall 11, at the folding line 109, is a rectangular lid part 41 which terminates, via the folding line 411, in a insertion flap 45 which engages in the pack casing. The lid part 41 in conjunction with the insertion flap 45 essentially form the closure 40 of the folding box 1. The lid part 41 is therefore preferably of a size which corresponds to the cross-sectional surface area of the pack casing of the folding box 1, and the insertion flap 45 is rectangular, the free-standing corners being rounded.

In each case one deformable flap 42, 44 is connected in an articulated manner, via the folding lines 110 and 111, to the two side walls 12 and 14 of the pack casing which are adjacent to the lid part 41.

Since the deformable flaps 42 and 44, as is also shown here, are preferably of identical configurations, the description of the flaps 42 and 44 will be restricted to the flap 42.

The deformable flap 42 is divided up essentially into five individual sections, to be precise, starting from the folding line 110, into a first spacer crosspiece 421, into a crosspiece 422, into a supporting strip 423, into a second spacer crosspiece 424 and into an adhesive flap 425. A total of four folding lines 120, 121, 122, 123 which are arranged parallel to the pack border are provided between the five sections comprising the spacer crosspiece 421, crosspiece 422, supporting strip 423, spacer crosspiece 424 and adhesive flap 425.

The first spacer crosspiece 421, the crosspiece 422, the supporting strip 423, the second spacer crosspiece 424 and the adhesive flap 425 are essentially rectangular. For accommodating the insertion flap 45, however, clearances may be provided on the corresponding sides of the spacer crosspiece 421, of the crosspiece 422, of the supporting strip 423, of the spacer crosspiece 424 and of the adhesive flap 425.

In the exemplary embodiment illustrated, the sum of the width of the crosspiece 422 and of the second spacer crosspiece 424 is equal to the width of the first spacer crosspiece 421.

For stabilizing the folding box 1, the first spacer crosspiece 421 and the crosspiece 422 may be adhesively bonded to one another.

The adhesive flap 425 is adhesively bonded to the inside of the pack casing of the folding box 1 such that the supporting strip 423 and the second spacer crosspiece 424 are aligned essentially at right angles to one another.
Together with the supporting strip 443, which is aligned in parallel once the flap 44 has been folded, this forms a surface which fixes the contents of the folding box 1 in position, with result that any movement of the product within the box 1 is ruled out.

In the preferred embodiment of the folding box 1 which is shown here, the two flaps 42 and 44 have cutouts additionally provided for accommodating the product, to be precise in the supporting strip 43 and in the second spacer crosspiece 424 and also in the supporting strip 443 and in the second spacer crosspiece 444.

The cutout is rectangular in the region of the supporting strip 423, whereas it then runs trapezoidally in the spacer crosspiece 424. The rectilinear part of the cutout in the supporting strip 424 supports the product, while the trapezoidal region engages around the product in the lateral region. In this case, the trapezoidal region of the cutout ends such that, with the flap 42 folded, a spacing remains between the cutout and the side wall 12. This makes it possible to engage around a lid of a product which has a smaller diameter than the container of the product, and thus to fix the entire product in position.

The cutout preferably does not extend over the entire surface area; rather, it is also possible to leave behind, within the cutout, a rectangular connecting crosspiece 426, which is connected to the supporting strip 423 via the folding line 424, and an adhesive extension 427, which is linked to the rectangular connecting crosspiece 426 via the folding line 125 and to the adhesive flap 425 via the folding line 123. The adhesive extension 427, which is trapezoidal in particular, the trapezium being extended as far as the adhesive flap 425 by a rectangle on its narrow side, is adhesively bonded to the adhesive flap 425. The connecting cross-piece 426 supports, and also fixes, the product within the box 1. Overall, the

reduced amount of cutting out increases the overall stability of the folded flap 42.

Figure 2 shows a further flattened-out, non-adhesively-bonded folding blank 10 of an advantageously configured folding box 1, said folding blank comprising a single-piece cardboard blank.

The body of the erected folding box 1 is formed by the front side wall 13, the rear side wall 11, the right-hand side wall 12, which connects the front side wall 13 and the rear side wall 11, and the left-hand side wall 14, a flap 15 being articulated laterally on the left-hand side wall 14, and being adhesively bonded to the rear side wall 11, for the non-releasable closure of the body. In order to improve the stacking capacity of the completed folding box 1, the four side walls 11, 12, 13, 14 taper slightly in the direction of the lid region 40 starting from the base region 30, this being illustrated in exaggerated form here for the sake of clarity.

The base closure 30 corresponds to that known from the folding box 1 according to figure 1. In each case one base flap 31, 32, 33, 34 is thus articulated on each of the four intermediate flaps 21, 22, 23, 24, in each case two of the base flaps 31, 32, 33, 34 being adhesively bonded to one another such that the base 30 automatically closes as the folding box 1 is erected, this producing the base closure 30, as is known according to ECMA Code A 6101 or A 6120 (see "THE ECMA CODE of FOLDING CARTON STYLES", published by ECMA (European Carton Makers Association), Reprint January 2000), as a folding-base closure with a fully covering base flap.

The cutout 131 is provided in the front side wall 13.

The essential differences from the folding box according to figure 1 can be found in the lid region 40. Articulated on the rear wall 11, first of all, is a rectangular lid part 41 which terminates, via the folding line 411, in an insertion flap 45 which engages in the pack casing.

In each case one deformable flap 42, 44 is connected in an articulated manner, via the folding lines 110 and 111, to the two side walls 12 and 14 of the pack casing which are adjacent to the lid part 41.

The deformable flap 42 is divided up essentially into four individual sections, to be precise, starting from the folding line 110, into a first spacer crosspiece 421, into a supporting strip 423, into a second spacer crosspiece 424 and into an adhesive flap 425. A total of three folding lines 120, 122, 123 which are arranged parallel to the pack border are provided between the four sections comprising the spacer

crosspiece 421, supporting strip 423, spacer crosspiece 424 and adhesive flap 425.

The first spacer crosspiece 421, the supporting strip 423, the second spacer crosspiece 424 and the adhesive flap 425 are essentially rectangular.

The adhesive flap 425 is adhesively bonded to the inside of the pack casing of the folding box 1, such that the supporting strip 423 and the second spacer crosspiece 424 are aligned essentially at right angles to one another.

The two spacer crosspieces 421 and 424 are preferably of the same width, but it is also possible for slightly different width to be selected, as a result of which the supporting strip 423 deviates slightly from the parallel alignment in relation to the wall of the pack casing.

A further special feature is constituted by the so-called "crowner" 43. Articulated on the side wall 13, via the folding line 401, is a first surface 431, which is followed by a second surface 432 via the folding line 402. A flap 433 is then articulated via the folding line 403.

The second surface 432 is preferably of identical dimensions to the first surface 431, and should not in any way be selected to be smaller. The two preferably rectangular surfaces 431 and 432 are adhesively bonded to one another and thus serve as an additional surface which may provide information on the product contained therein or an "eye-catcher". The crowner 43 extends vertically from the folding box 1 in order thus to draw more attention to the box 1.

The folding line 403 may be configured as a weakened or predetermined breaking line in order to allow the crowner 43 to be severed easily from the folding box 1 without damaging the latter.

Figure 3 shows a further flattened-out, non-adhesively-bonded folding blank 10 of an advantageously configured folding box 1 without a crowner, said folding blank comprising a single-piece cardboard blank.

The folding box 1 from figure 3 differs from that from figure 1 merely by the configuration of the flaps 42 and 44.

According to figure 3, the deformable flap 42 is divided up essentially into six individual sections, to be precise, starting from the folding line 110, into a first spacer crosspiece 421, into a supporting strip 423, into a second spacer crosspiece 424, into an adhesive flap 425, into a third spacer crosspiece 428 and into a second adhesive flap 429. A total of five folding lines 120, 122, 123, 126, 127 which are arranged parallel to the pack border are provided between the six

sections.

In the preferred embodiment of the folding box 1 which is shown here, the two flaps 42 and 44 have cutouts additionally provided for accommodating the product, to be precise in the supporting strip 423 and in the second spacer crosspiece 424 and also in the supporting strip 443 and in the second spacer crosspiece 444.

The cutout is rectangular in the region of the supporting strip 423, whereas it then runs trapezoidally in the spacer crosspiece 424.

The cutout is completed here.

Figure 4 discloses the operation of folding up the deformable flap 42.

The operation takes place such that the adhesive flap 425 can be adhesively bonded to the side wall 11, and the second adhesive flap 429 can also be adhesively bonded to the supporting strip 423.za

If the flap 42 is folded over through 90° in relation to the body of the folding box 1, the supporting strip 423 is erected parallel to the side wall 11. The double adhesive bonding considerably increases the fixing support of the product and the stiffening of the flap 42.

The cutout is punched out in accordance with the product contour.

Figures 5 and 6 shows the first steps in the operation of folding the folding box 1 according to figure 2.

The intermediate flaps 21, 22, 23, 24, which are all of the same height, are provided with an adhesive and folded over in the direction of the box 1 such that the intermediate flaps 21, 22, 23, 24 are adhesively bonded to the interior of the side walls, 11, 12, 13, 14 (see, in particular, intermediate flap 21 on side wall 11 in figure 6).

The base flaps 31, 32, 33, 34 are folded back through 90° and, for assembling the base closure 30, the two adhesive sections 321, 341, which are integrally formed on the flaps 32 and 34, are then provided with an application of adhesive and are correspondingly adhesively bonded to the flap 33 and 31.

Figure 6 indicates the procedure with the flaps 42 and 44 as well as the crowner 43. The flap 44 is folded, with result that the supporting strip 443 is arranged parallel to the side surface 14 and the adhesive flap 425 is adhesively bonded to the side surface 14. The flap 42 is also folded accordingly.

The crowner 43 is produced by the second surface 432 being folded back through 180°, being provided with an application of adhesive and being pressed onto the

first surface 431.

Figure 7 shows the base closure 30 of an advantageously configured folding box 1, to be precise with the base 30 offset to be inside of the box. The height of the intermediate flaps 21, 22, 23, 24 predetermines the depth to which the base is displaced in the direction of the box interior.

Figure 8, finally, shows how two completed folding boxes 1 and 2 according to the invention are stacked one upon the other.

As a result of the preferred embodiment of the four side walls 11, 12, 13, 14 tapering in the direction of the lid region 40 from the base region 30, the cross section of the surface area in the lid region 40 is smaller than that in the base region 30, and the top folding box 1 – as a result of the base 30 being offset to the inside of the box – can easily be stacked on the bottom folding box 2, the two boxes undergoing a relatively fixed connection in the process.